

TESTIMONY ON
OVERSIGHT OF HELICOPTER MEDICAL SERVICES

PROFESSIONAL HELICOPTER PILOTS ASSOCIATION
(PHPA),
OFFICE OF PROFESSIONAL EMPLOYEES
INTERNATIONAL UNION (OPEIU)

BY

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BEFORE

THE SUBCOMMITTEE ON AVIATION OF THE
TRANSPORTATION AND INFRASTRUCTURE COMMITTEE

U.S HOUSE OF REPRESENTATIVES

WASHINGTON, DC

APRIL 22, 2009

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PROFESSIONAL HELICOPTER PILOTS ASSOCIATION

Office and Professional Employees International Union
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Recommendations to Congress on Helicopter Emergency Medical Services (HEMS) Operations

April 17, 2009

The Professional Helicopter Pilots Association (PHPA) has a membership of over 4,000 helicopter pilots around the United States and Canada, over 1,500 of which are active HEMS pilots.

While there is no inexpensive easy fix to the issue of HEMS safety, solutions to well known problems do exist. If helicopter safety in the United States is to approach the level of airline safety, the model has only to be copied. Equipment, training and support systems must be brought up to the levels that have resulted in such visible improvements to airline safety over the past several decades. Airline equivalent safety records have been obtained in other countries, most notably Canada, where there has not been a fatal HEMS accident in over three decades.

PHPA recognizes that there is significant financial cost to any change in current equipment provisions or practices; and every effort has been made to temper our desire for immediate improvements with the practical realities of the HEMS business. Yet there is a cost in maintaining the status quo, and we believe that cost, one measured in lives lost and confidence destroyed in the system, to be far higher. Furthermore, responsible operators trying to do right by voluntarily adopting safer aircraft and practices are placed at a competitive disadvantage by those looking for ways to operate at the margins.

The general public usually does not have a choice in selecting the equipment or the operator that will transport them, or a member of their family, in a situation requiring a HEMS flight. Where choice over matters of health and welfare are restricted, government has traditionally stepped in to insure that an adequate level of safety is provided. Even when choice is available, in matters of public transportation the government has always taken an active role in establishing minimum equipment requirements and safe operating practices, and modified those requirements as necessary to address changes within the industry.

It is our contention that relying on voluntary compliance for essential equipment and practices will only result in a continuation of the status quo.

The recommendations below address both immediate requirements and long term goals. They represent the combined concerns of professional career pilots who want the tools to go along with the responsibility for insuring that every flight is brought to a safe and successful conclusion.

I. AIRCRAFT RELIABILITY:

1. Maintenance:

Recommendations – PHPA is currently monitoring the efforts of the International Helicopter Safety Team (IHST) to see if their recommendations in the maintenance field are sufficient to warrant the confidence of our membership.

II. PILOT RELIABILITY:

1. Training:

Recommendations – Total pilot flight hours and experience outside the HEMS segment do not represent the best measure of a pilots' suitability for this work. The amount of pre-employment training that should be provided depends to a large degree on whether or not the new employee will be immediately flying HEMS flights as a single pilot, or as part of a crew under the tutelage of an experienced HEMS pilot. Since there are presently very few two-pilot HEMS operations in the United States, PHPA believes that better guidelines for new HEMS pilot training are needed to ensure that solo pilots are properly prepared for the job. These guidelines should be developed considering the amount of single pilot experience, night experience, and experience in aircraft type along with other appropriate factors so as to arrive at a template for training based on the individual pilots' needs, as opposed to "cookie cutter" training programs that vary from operator to operator.

Beyond new employee training, better guidance for routine refresher training in perishable skills is needed. Such training should go beyond simple emergency procedure training and use realistic HEMS scenarios that have specific training objectives. These training flights would ideally be performed several times per year in the same type aircraft and location that the pilot normally flies. However, due to the high cost of such training, similar training conducted in a modern, high fidelity flight simulator representing the type of aircraft normally flown and programmed to the pilots' home location would be an acceptable substitute.

2. Crew Rest:

Recommendation - Incorporate recent white paper on the subject as the basis for an industry wide standard which includes training on dealing with fatigue in the HEMS community.

3. Safety Motivation:

Recommendation - Require all operators institute a Safety Management System that goes beyond documents and lip service and makes safety the top priority of the

organization. Establish an ISO-9000 equivalent structure to set standards and certify that operators have true “buy-in” at the Senior Executive level. This could be accomplished by industry with insurance company negotiated benefits for those found to be in compliance, and regulatory penalties for those who are not.

SUPPORT SYSTEMS:

Primary Support Systems

1. Night Vision Goggles or Night Vision Imaging System:

Recommendation - Require one of these systems be onboard and functioning in each aircraft in the current HEMS fleet as quickly as equipment can be purchased, aircraft modified and crews trained. Restrict noncompliant aircraft to day-only flight beyond mandatory implementation date of 24 months.

2. Helicopter - Terrain Awareness and Warning System (H-TAWS):

Recommendation - Require installation in the current HEMS fleet within 36 months, with equipment based on the FAA’s recently published TSO. Require on all HEMS aircraft purchased for replacement or expansion.

3. Wire-strike Protection System:

Recommendation - Require installation in the current HEMS fleet where systems exist for individual models. Require on all HEMS aircraft purchased for replacement or expansion.

4. Color Moving Map GPS:

Recommendation - Require installation in current HEMS fleet within 18 months.

5. Flight Data Recorder / HUMS:

Recommendation - Require installation in current HEMS fleet within 48 months to include cockpit voice recorder and instrument monitoring through video (as a minimum) where full flight parameter monitoring on legacy aircraft is not practical. Data developed should be used pre-accident for refresher training as part of a FOQA program.

6. IFR Certified Aircraft

Recommendation - Require replacement or expansion aircraft to meet full IFR certification. Within 60 months, restrict non-compliant VFR aircraft to day-only flight.

7. Two Pilot Crews:

Recommendation - A two pilot crew is likely the single most effective tool available to reduce human error accidents. It should be the standard for most operations, particularly those conducted at night into unprepared landing sites. While not a substitute for a second pilot, a functioning auto-pilot should be required for all single pilot HEMS flights.

8. Multi Engine:

Recommendation - Require replacement or expansion HEMS aircraft to meet ICAO Category A, Class 1 or 2 requirements.

Secondary Support Systems

1. ASAP & FOQA Programs:

Recommendation - PHPA supports the implementation of non-punitive ASAP & FOQA programs that encourage pilot participation and reporting of safety related issues. A well designed and managed program can provide pilots with invaluable feedback to improve overall safety performance.

2. Weather Reporting:

Recommendation - The FAA and the National Weather Service should secure increased funding to place fully capable automated weather observation platforms in locally identified problem weather areas shown to impact safe HEMS operations. Information from these sites should be available to pilots both pre-flight, and during flight.

3. ADS-B

Recommendation – The FAA has been very slow in developing and funding the implementation of this system. It is particularly useful to low flying helicopters and will help provide separation between other air traffic as well as improve communications. Congress should insure adequate funding is available for this system and provide oversight on the FAA to insure the program moves along at a reasonable pace.

4. Flight Dispatching / Customer Interference:

Recommendation – Any pressure applied to a pilot to accept a flight, whether overtly or covertly applied, will continue to have a negative impact on safety. The FAA must be more aggressive in ensuring that the operational control vested with the HEMS certificate holder is not in any way violated or undermined.

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ACHIEVING SAFER HELICOPTER OPERATIONS

The safe operation of helicopters is the function of three things: Aircraft Reliability, Pilot Reliability, and Support System Availability.

I. AIRCRAFT RELIABILITY: Requires two things: sound engineering, and proper maintenance.

Engineering: The vetting process for aircraft manufacturing is well established and for the most part results in aircraft that are fundamentally safe. New designs incorporate lessons learned from the past and new aircraft, once they are properly field tested, are steadily gaining in reliability. This part of the industry is highly regulated and all manufacturers must adhere to strict, standardized requirements.

Maintenance: The weak link in the aircraft reliability chain is maintenance. Aircraft maintenance is expensive. Helicopter components are particularly subject to high stresses and many expensive parts must be replaced routinely. In addition, aircraft undergoing maintenance are not generating revenue. Some operators, seeking to hold down costs, delay making repairs until absolutely forced to. Pilots who refuse to fly aircraft with equipment problems are sometimes branded complainers and risk disciplinary action.

Qualified mechanics are in short supply and industry does not seem to be providing the compensation packages and working conditions to entice enough talented people into the field. Even airlines are increasingly outsourcing maintenance to offshore operations where costs are lower, but standards are suspect. While not yet a major issue causing accidents in the helicopter industry, the quality of aircraft maintenance is a weak point in the aircraft side of the system as it does not have the safeguards that exist in the manufacturing side of the industry. This entire segment warrants additional review.

II. PILOT RELIABILITY: Requires a pilot who is well trained, well rested and properly motivated.

"Pilot Error" is a term that is well known, but poorly understood by the public. Pilots make errors for reasons that are well known and mostly preventable.

Training: Can be divided into two parts, Initial Pilot Qualification (along with the experience gained prior to assuming responsibility for a particular type of operation); and Specific Job Training (along with ongoing refresher training while employed in a particular type of helicopter operation).

Unlike airline piloting, where the differences between jobs simply involves becoming familiar with a different aircraft and routes, helicopter piloting jobs vary widely in scope and complexity. A highly experienced and skilled off-shore pilot is not necessarily a good candidate to put in command of a HEMS (Helicopter Emergency Medical Service) flight, even if the helicopter is the same make and model.

Initial helicopter pilot qualification takes two forms: civil training and military training. Both have their strengths and weaknesses. Suffice it to say both systems produce pilots capable of safe operations. The experience they gain and the training they receive AFTER they get their license is far more important than the type of flight school that they attended to earn their wings.

Experience is an important teacher, but not all experience is equal particularly in operating helicopters. A pilot who is highly experienced operating a two pilot, large sophisticated twin engine helicopter under instrument flight rules (IMC) over water is cannot be considered experienced or safe if placed in a single pilot situation operating a small basic helicopter under visual meteorological conditions (VMC) at night over mountainous terrain.

Even with the best of training, pilot proficiency in seldom used skills deteriorates rapidly. The established minimum standards for keeping pilots current in critical skills are insufficient. Operators must therefore determine what if any additional training they will provide. Cost-benefit determinations are often arrived at which have far more to do with cost than benefit. Airlines, whose pilots do the same things day after day, spend more time and effort on refresher training than do virtually any helicopter operators whose pilots can find they are dealing with situations they haven't seen in years. While refresher training is likely as important as initial job qualification training in accident prevention, it often receives far less attention from operators.

Crew Rest: Well trained and experienced pilots make mistakes if they are not properly rested. The regulatory environment addressing both fixed wing and rotary wing crew rest is fundamentally flawed and in need of revision.

Much of the responsibility is currently placed on individual pilots to insure that they are rested before accepting a flight. But work schedules often place pilots in situations that are guaranteed to result in fatigue. A fatigued pilot is less capable of dealing with high workload situations in the cockpit. Yet a pilot who refuses to fly because he or she is tired risks a reputation for being unmotivated or lazy at best, and discipline or loss of employment at worst.

Many operators keep pilots on duty schedules that bump right up against the maximum permitted by the FAA, and these limits were never based on scientific study. No one can argue that many "pilot error" accidents resulted from pilots who were simply too fatigued to deal with the situation in which they found themselves. Yet fatigue, leading to poor decisions in flight, seldom leaves a calling card to be read by accident investigators. The final report will simply read "pilot error".

The most effective way to deal with the whole subject of fatigue and distractions is to have a second pilot on board the aircraft. The most important part of having a second pilot on board is the likelihood that if one human is about to make a mistake, the other human will catch it in time to prevent an incident or accident. Since 70% to 80% of accident reports cite the pilot as at least a contributing factor, pilot reliability obviously needs improvement and the best method available to achieve that is redundancy.

Safety Motivation: All pilots are supremely confident in their own ability. It's a prerequisite for the job. People who are hesitant or unsure of themselves never make it past initial flight training.

Such confidence can be counterproductive. It causes pilots to ignore warning signs (internal and external) because they believe that "they can handle it". As a result, some pilots may fly tired, or in unsuitable weather, or accept aircraft that have maintenance problems.

Most operators would take offense to an accusation that they place profit before safety. Yet they constantly talk about tight budgets, high costs, and the need for every revenue flight. Some HEMS operations even post signs in the pilots ready room listing the number of flights needed to make budget for the month, counting down as each flight is completed. Such practices are an unrelenting pressure on the pilot to fly, even when he feels it is not safe to do so.

This is the dirty little secret of aviation. Outsiders wonder why the pilot, the final authority over the safe operation of the aircraft, would do something that he/she had to know was risky. Perhaps it was lack of proper training, or fatigue, or inadequate equipment - but all too often it just might be a pilot trying to keep his employer happy, and keep his job.

Helicopter safety ultimately is determined by the safety culture of the organization. If pilots know that their job will be in jeopardy if they do not place safety above all else, those pilots will be motivated to be cautious pilots. The pressure to fly, to accept every revenue generating opportunity, must be removed from the pilot, so that they are motivated to fly safely by those who provide them with the opportunity to do what they love to do.

A properly designed and executed Safety Management System can be very effective in improving the safety culture of an organization, and it will be discussed more in the following section.

III. SUPPORT SYSTEMS: Refers to issues ranging from onboard support systems for the type of operation desired, to ground support systems such as proper dispatching, air traffic control and weather observations/forecasts.

Onboard Support Systems: Those following the concerns over the HEMS accident rate are familiar with calls for better onboard equipment, ranging from Night Vision Goggles (NVG) and Terrain Awareness and Warning System (TAWS) to Multi-Engine helicopters. Onboard equipment is no more than the tools to be used by the pilot. Not all flights need the same tools to make the flight easier or safer. But all too often, critical tools are not made available to the pilot, and the job becomes much more difficult and subject to increased risk.

The most conscientious humans have sensory limitations and are error prone. Properly designed equipment utilized by properly trained people can help reduce errors. Consider that the most widely used turbine powered helicopter in the country first flew in 1967 and with few exceptions, the equipment currently available in HEMS helicopters in use today does not differ greatly from what was available in that early model. By comparison, consider an automobile built in 1967 and the equipment differences between that and the 2009 model. Most parents would not let their teenage child drive a car without airbags and anti-lock brakes. Yet that same child, following an accident, might be placed in a medical helicopter that is lacking the aviation equivalent to these technological safety advancements.

Pilot calls for modern equipment are too often met with the oft repeated financial concerns from owner/operators. Yet some types of flights simply require a certain level of equipment sophistication to reach a reasonable expectation of a successful conclusion. One example is the routine operating of HEMS aircraft in situations where un-forecast instrument conditions can be encountered, but not requiring that those aircraft and crews to be certified and competent to fly IFR. Regulations specifying required onboard equipment need to catch up to the equipment manufactures who are producing some very useful tools, and the requirements should be tailored to the type of operation anticipated.

While proper tools are important to safe flight, the most significant onboard support system to flight safety is a second qualified pilot. The significance of a second pilot to offset fatigue and personal distractions has already been addressed. Having a second pilot seat also helps rectify the training issues mentioned earlier. Pilots new to a type of operation such as HEMS can gain experience under the tutelage of a pilot experienced in those operations. Beyond these concerns, a second set of eyes and hands are invaluable when the workload starts to increase due to deteriorating weather, changes to the flight plan, or onboard malfunctions.

Operators will insist that a second pilot is just too expensive. Even some pilots will argue that "they can handle it" solo and don't need a co-pilot. But the simple truth is that the single most effective way to improve safety in the helicopter industry is to require two pilots on board the helicopter. That is the requirement in Canada, where they have an outstanding HEMS safety record with no fatal accidents in over 30 years. Closer to home, many forward thinking oil producing companies have started requiring two pilot aircraft to transport their workers to off-shore platforms. They must know something.

Ground Support Systems: The most important ground support system is a safety culture in the organization that operates the aircraft. If the certificate holder makes safety a real priority and not just a slogan, the rest of the organization will follow. The formalized way to accomplish this is with a Safety Management System.

Unfortunately, many managers are far more concerned about controlling expenses. Everything about aviation operations is expensive. New helicopters cost many millions of dollars, they are expensive to maintain and operate. Pilots want fair compensation for the years of training they have obtained and the high cost in dollars or years of military service they spent obtaining that training. Pilots also want the best equipment, and good equipment is expensive.

Operators who truly want to do the right things (as most do) face a competitive disadvantage from those who try to operate on the cheap. How can an operator buy the latest twin engine design with all the latest tools, pay for two pilot operations and compete against another operator who buys a used single engine airframe designed over 40 years ago and puts a young hungry pilot alone at the controls? Yet this is the history of this industry.

There is an expectation from the public that if they pay for air transportation, the government is making sure that the aircraft and their operation are safe. We expect to be able to get on any airliner and safely get to our destination. We should be able to expect the same when we get on board any helicopter. Unfortunately, we are not at that point in this industry, and the situation is even worse for HEMS as the public often does not have a choice whether or not they even want to be transported, much less who the carrier will be.

The above fact alone is enough justification for increased government oversight of helicopter operations, at least in the HEMS segment. The proper role of government should be one of leveling the playing field for businesses to compete upon. Mandatory minimum equipment requirements should be increased for the HEMS industry, so that operators trying to offer the safest environment possible are not undercut by those only interested maximizing profits.

Beyond a safety culture, there are ground support systems that impact the safety of helicopter operations, many of them functions of State or National government.

Inadequate weather reporting is a constant problem for helicopters that normally operate visually at low altitude and are subject to dealing with low ceilings and visibilities during the entire flight, not just at takeoff and landing like an airliner. HEMS and off-shore operations in particular need better real time weather observations and reporting systems for the areas they operate.

Air traffic control and separation is another layer of safety that is readily available to every airliner, but not to many helicopter operations because they often fly too low to be seen on radar or communicate with ground controllers. New systems like ADS-B can make these ATC capabilities available to low altitude helicopter operations, but government funds have been slow in coming. Once the system is in place, new (expensive) equipment will be required in the aircraft, and such equipment should be made mandatory and not left up to the discretion of cost conscious operators.

Flight Dispatching / Customer Interference: Some operations are negatively influenced by customers who push for flights to be completed to serve their own agendas. Control over who has the ability to dispatch a flight and what pressure is placed on the crew to accept a flight continue to be issues that need resolution. Customer interference can even become an issue during flight where aircraft design is not suitable to properly separate the cockpit and flight crew from interference or distractions from passengers or patients.

CONCLUSIONS: Helicopter safety requires safe aircraft, well trained pilots, and a safe environment in which to operate. There are many ways to improve the level of helicopter safety. The hard part is determining what level of safety is sufficient and sustainable.

Different stake holders will have different opinions on where that level should be. Owner/operators, pilot groups, equipment and airframe manufacturers, along with regulators and politicians must work together to find an acceptable level of safety at a cost that is supportable over the long term.

Work in this direction is already happening to a degree under the umbrella of the International Helicopter Safety Team (IHST). The effort is a long term one, and the ultimate impact of this effort will be slow in developing. Yet one aspect of this effort will limit the potential effectiveness of the program – it relies almost exclusively on voluntary compliance with the safety recommendations being developed.

The Professional Helicopter Pilots Association does not believe that the current industry composition of numerous small, weakly capitalized operators is

conducive to voluntary compliance with costly safety recommendations. Many small operators will continue to try and undercut the competition by utilizing dated equipment and pushing crews to the limit. That the industry is consolidating is ultimately a positive development since larger, well financed operators are more capable of financing the types of changes that can bring significant improvements in the safety picture. But until that process is further developed, far too many small operators ignoring recommended safety practices will keep the full value of the IHST from being realized.

For the foreseeable future, we believe that there must be an honest broker to mediate the differences between the various groups on what measures should be taken to improve the current situation. We can see no other viable entity to perform this function besides the government. While our membership is as wary as the rest of industry over legislators and regulators telling us how to conduct our business, the remedies we believe will result in real change will not occur through voluntary compliance by profit oriented organizations. Some initiatives simply must be mandated.

PHPA stands prepared to share our members' collective experience with all who will listen. We are also prepared to be convinced that there are better alternatives to those that we are proposing. What we are not prepared to do is accept the status quo, which for too long has simply blamed the pilot when things go wrong. Such a solution is no solution and will do nothing to improve the safety record of this industry.